

FIG. 1

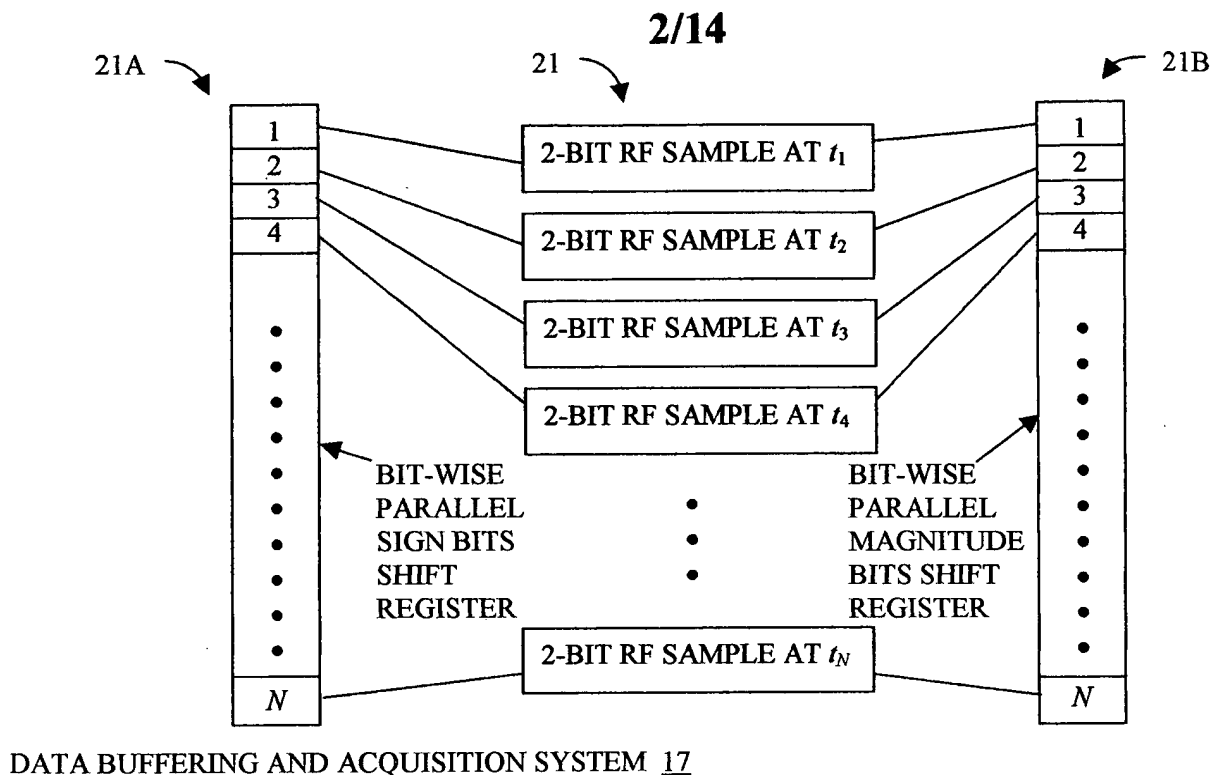


FIG. 2A

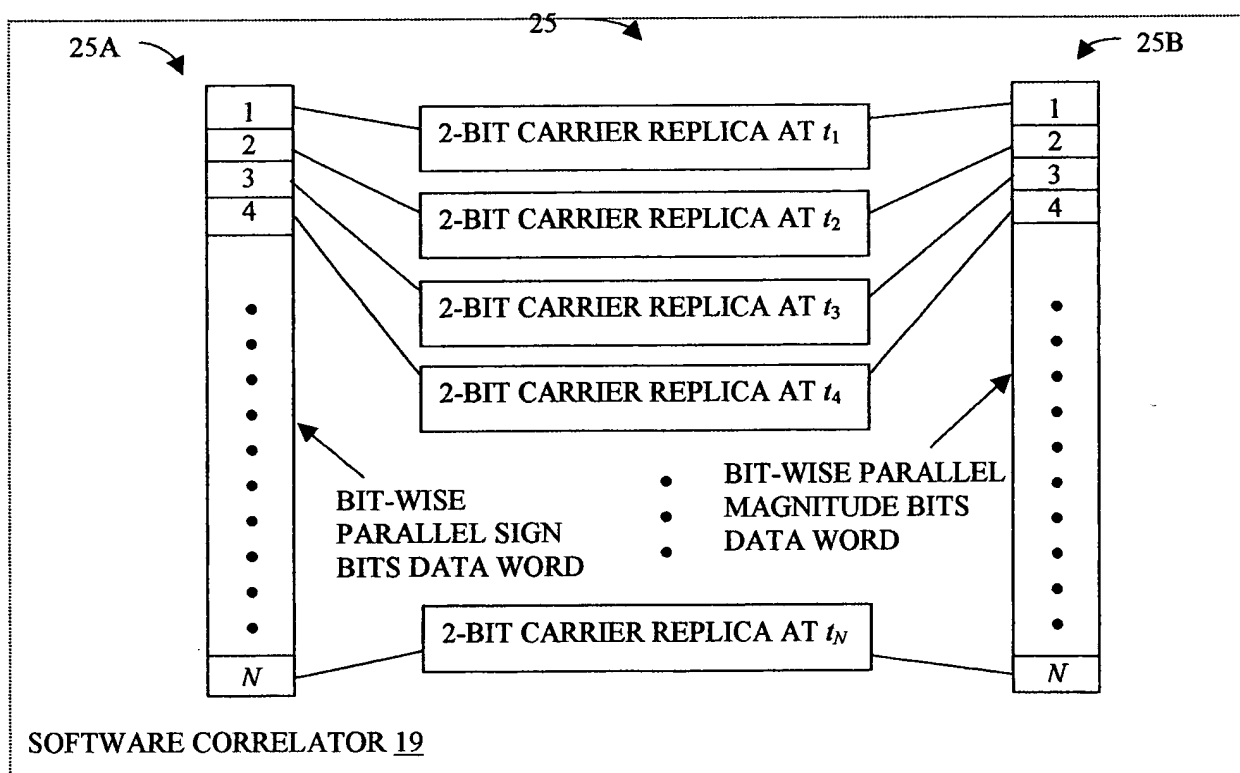


FIG. 2B

Quantity		Sequence															
Sample Times		t_0	t_1	t_2	t_3	t_4	t_5	t_6	t_7								
21	RF Signal	1	1	-1	-1	-1	1	1	1								
	Word Representation of Signal	<table border="1"><tr><td>1</td><td>1</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td></tr></table>								1	1	0	0	0	1	1	1
1	1	0	0	0	1	1	1										
	PRN Code replica	1	-1	-1	-1	1	1	1	1								
	Word Representation of PRN Code replica	<table border="1"><tr><td>1</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td></tr></table>								1	0	0	0	1	1	1	1
1	0	0	0	1	1	1	1										
	Product of Signal and PRN Code replica	1	-1	1	1	-1	1	1	1								
	Word Representation of Product	<table border="1"><tr><td>0</td><td>1</td><td>0</td><td>0</td><td>1</td><td>0</td><td>0</td><td>0</td></tr></table>								0	1	0	0	1	0	0	0
0	1	0	0	1	0	0	0										

FIG. 2C

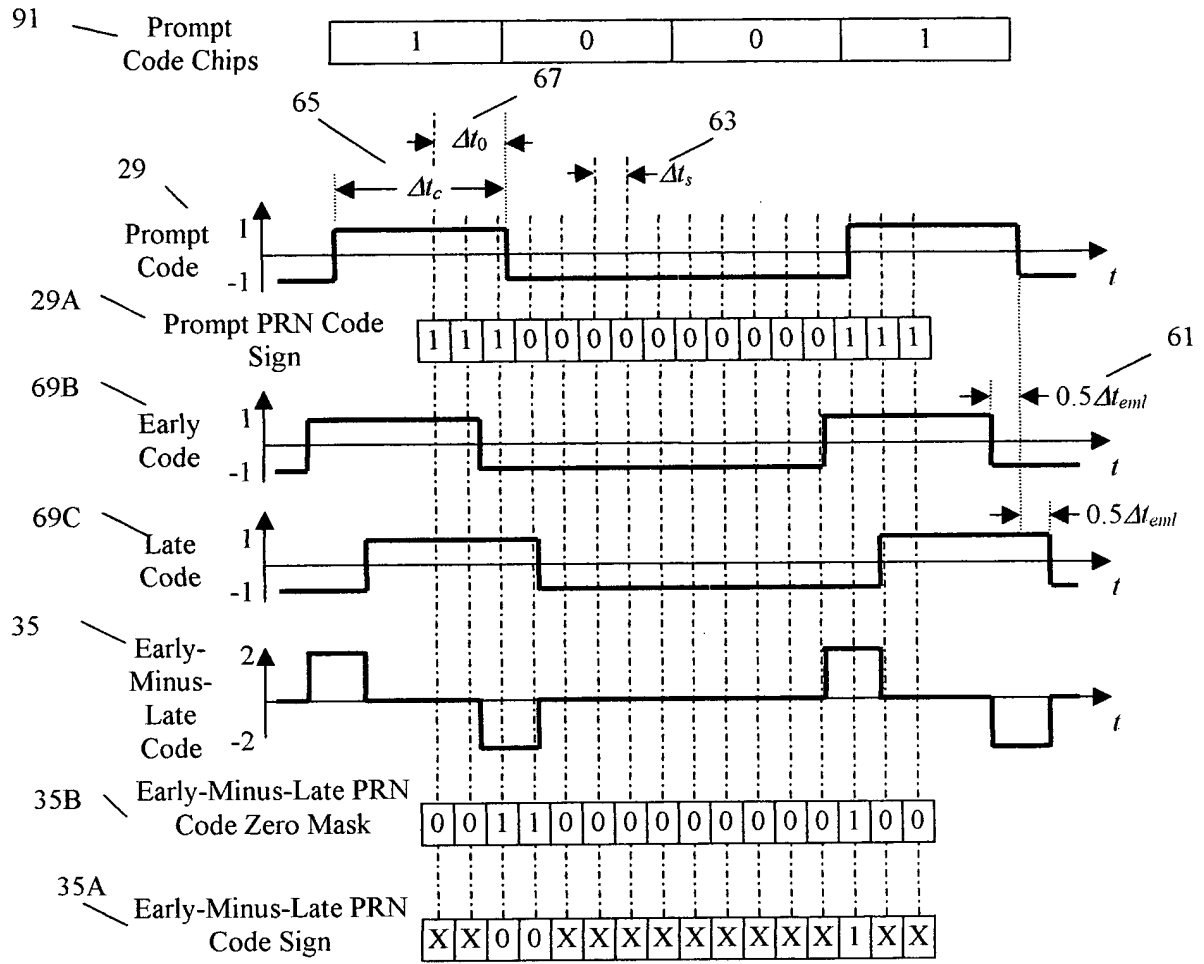


FIG. 2D

FIG. 3A

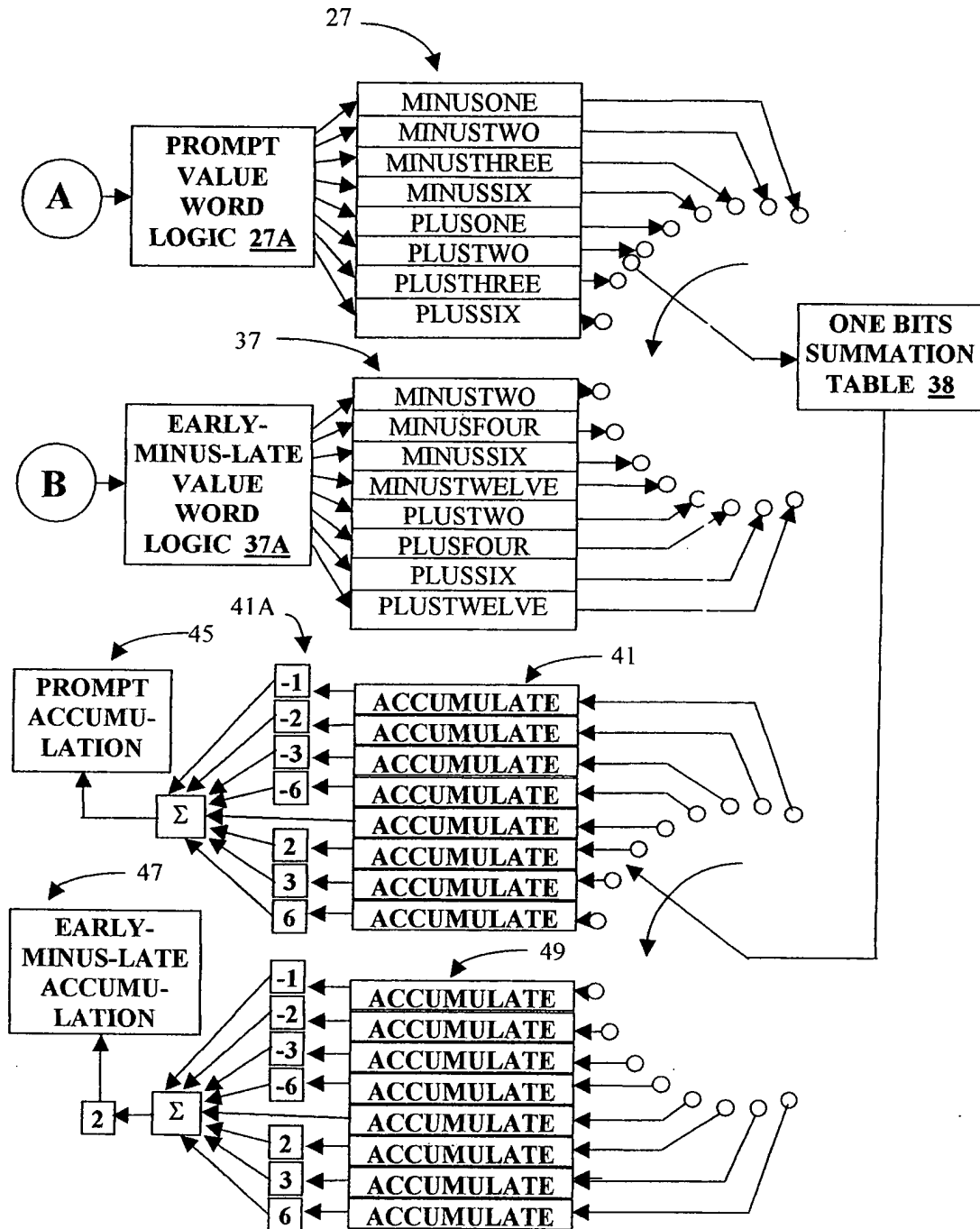


FIG. 3B

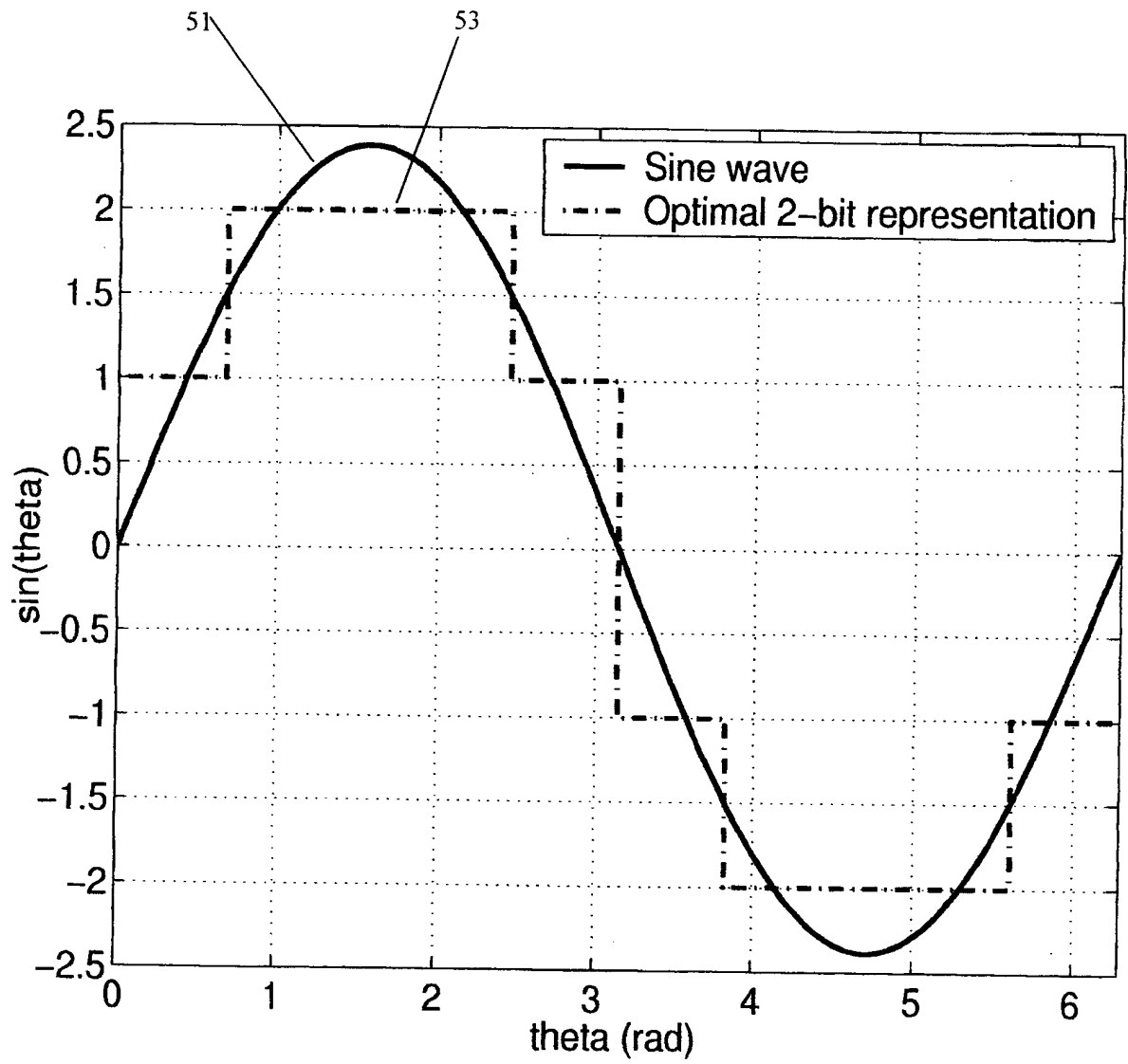


FIG. 3C PRIOR ART

A

8/14

REPRESENT SAMPLE SIGNAL DATA 21 FROM AT LEAST ONE CHANNEL AS SIGNAL SIGN 21A AND, IF PRESENT, SIGNAL MAGNITUDE 21B AND SELECT CARRIER REPLICA 25 BASED ON ITS FREQUENCY'S PROXIMITY TO A DESIRED CARRIER REPLICA FREQUENCY, REPRESENT CARRIER REPLICA 25 AS CARRIER REPLICA SIGN 25A AND CARRIER REPLICA MAGNITUDE 25B, 101

MIX SIGNAL DATA 21 TO BASEBAND → COMPUTE BASEBAND MIXED SIGN 23A = XOR (CARRIER REPLICA SIGN 25A, SIGNAL SIGN 21A); COMPUTE BASEBAND MIXED MAGNITUDE 23B/C = f(CARRIER REPLICA MAGNITUDE 25B, SIGNAL MAGNITUDE 21B) 103

SELECT PRN CODE FROM PRN CODE TABLE 28 OR COMPUTE IT USING REAL-TIME OVER-SAMPLED PRN CODE GENERATOR 30A; REPRESENT PROMPT PRN CODE 29 AS PROMPT SIGN 29A; REPRESENT EARLY-MINUS-LATE PRN CODE 35 AS EARLY-MINUS-LATE PRN SIGN 35A AND EARLY-MINUS-LATE PRN ZERO MASK 35B 105

DE-SPREAD BY MIXING IN-PHASE AND QUADRATURE BASEBAND MIXED SIGNALS 23 WITH PROMPT PRN CODE 29 AND EARLY-MINUS-LATE PRN CODE 35: COMPUTE FULLY MIXED PROMPT INTEGRAND SIGN 31A = XOR (BASEBAND MIXED SIGN 23A, PROMPT PRN CODE SIGN 29A); COMPUTE FULLY MIXED PROMPT INTEGRAND MAGNITUDE 31B/C = f(BASEBAND MIXED MAGNITUDE 23B/C); COMPUTE FULLY MIXED EARLY-MINUS-LATE INTEGRAND SIGN 33A = XOR (BASEBAND MIXED SIGN 23A, EARLY-MINUS-LATE PRN CODE SIGN 35A); COMPUTE FULLY MIXED EARLY-MINUS-LATE INTEGRAND HIGH/LOW MAGNITUDE 33B/C = f(BASEBAND MIXED MAGNITUDE 23B/C); COMPUTE FULLY MIXED EARLY-MINUS-LATE ZERO MASK 33D = f(EARLY-MINUS-LATE PRN CODE ZERO MASK 35B); RESULT IS FULLY MIXED IN-PHASE AND QUADRATURE PROMPT INTEGRANDS 31 AND FULLY MIXED EARLY-MINUS-LATE INTEGRANDS 33 107

COMPUTE IN-PHASE AND QUADRATURE PROMPT INTEGRAND VALUE WORDS 27 AND EARLY-MINUS-LATE INTEGRAND VALUE WORDS 37: PROMPT INTEGRAND VALUE WORDS 27 = f(FULLY MIXED PROMPT INTEGRAND SIGN 31A, FULLY MIXED PROMPT INTEGRAND MAGNITUDE 31B/C); COMPUTE EARLY-MINUS-LATE INTEGRAND VALUE WORDS 37 = f(FULLY MIXED EARLY-MINUS-LATE INTEGRAND SIGN 33A, FULLY MIXED EARLY-MINUS-LATE INTEGRAND MAGNITUDE 33B/C, FULLY MIXED EARLY-MINUS-LATE INTEGRAND ZERO MASK 33D) 109

B

FIG. 4A

B

9/14

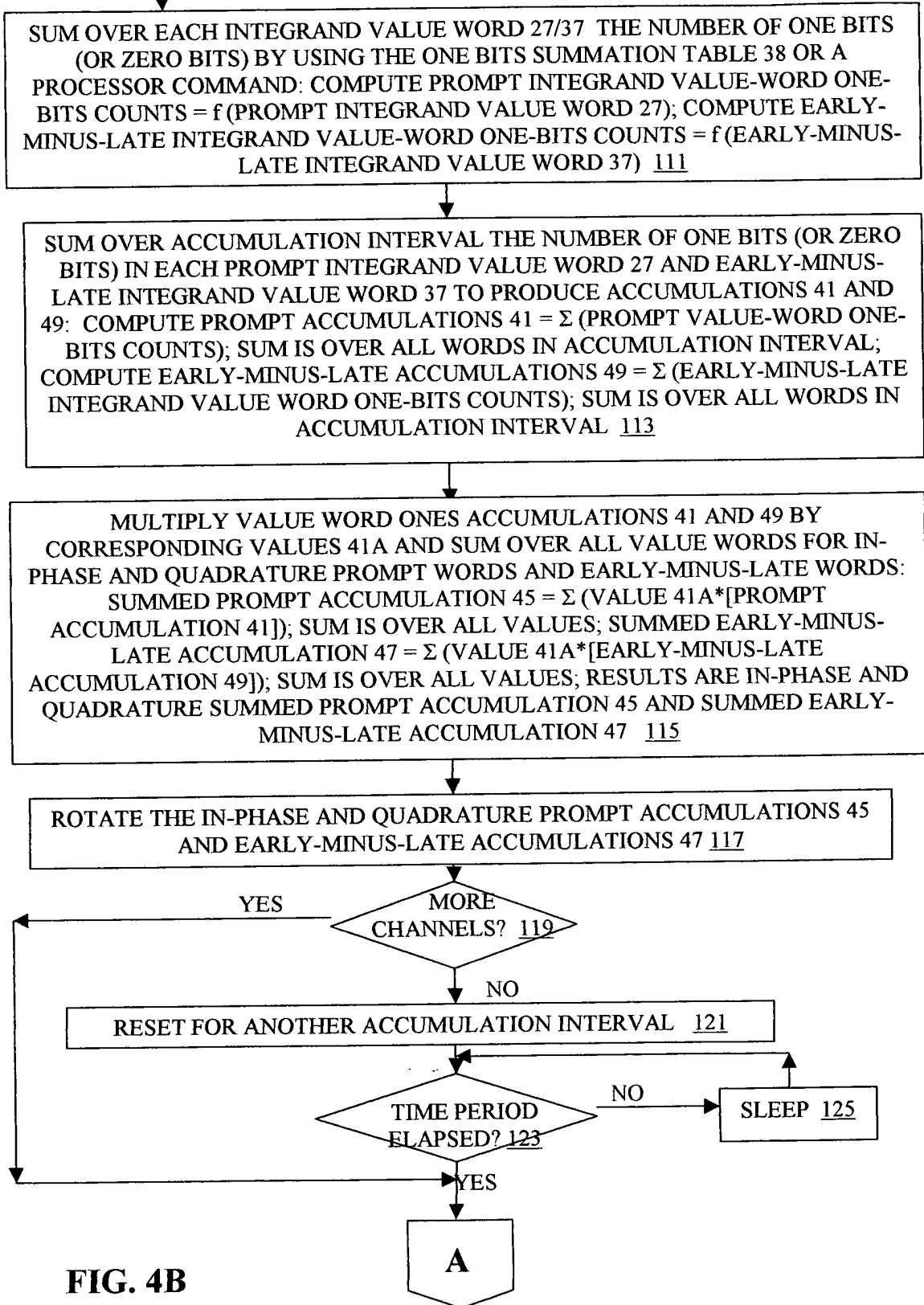


FIG. 4B

Table Element	Code Time Offset	Bit Sequence of L Code Chips (first is left-most, last is right-most)	
$x(1)$	Δt_{0kmin}	0 0	0 0 0 0 0
$x(2)$	Δt_{0kmin}	0 0	0 0 0 0 1
$x(3)$	Δt_{0kmin}	0 0	0 0 0 1 0
$x(4)$	Δt_{0kmin}	0 0	0 0 0 1 1
\vdots	\vdots	\vdots	\vdots
$x(2^L)$	Δt_{0kmin}	1 1	1 1 1 1 1
$x(2^L+1)$	$\Delta t_{0(kmin+1)}$	0 0	0 0 0 0 0
$x(2^L+2)$	$\Delta t_{0(kmin+1)}$	0 0	0 0 0 1 0
\vdots	\vdots	\vdots	\vdots
$x(2^L \times k_{tot})$	Δt_{0kmax}	1 1	1 1 1 1 1

FIG. 5

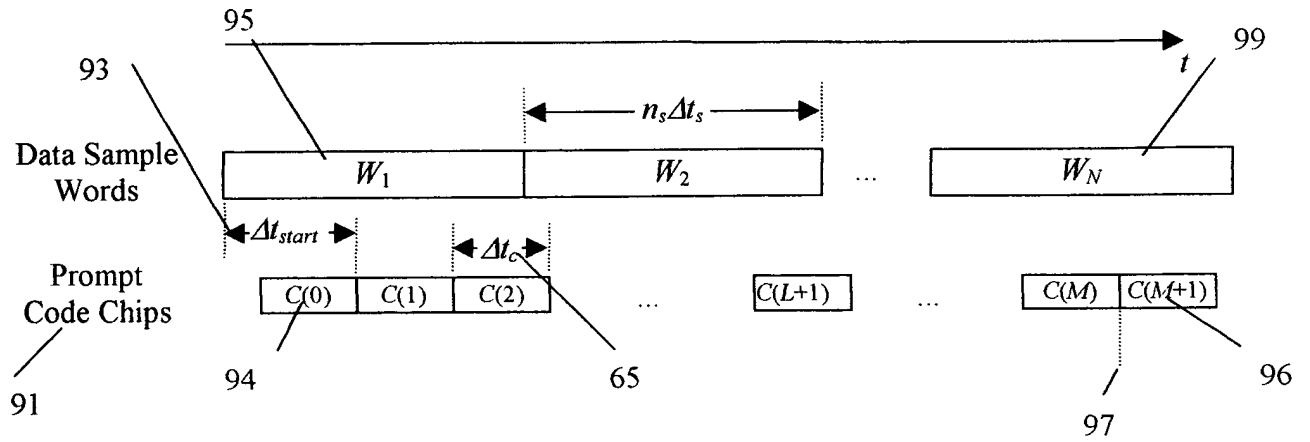


FIG. 6

12/14

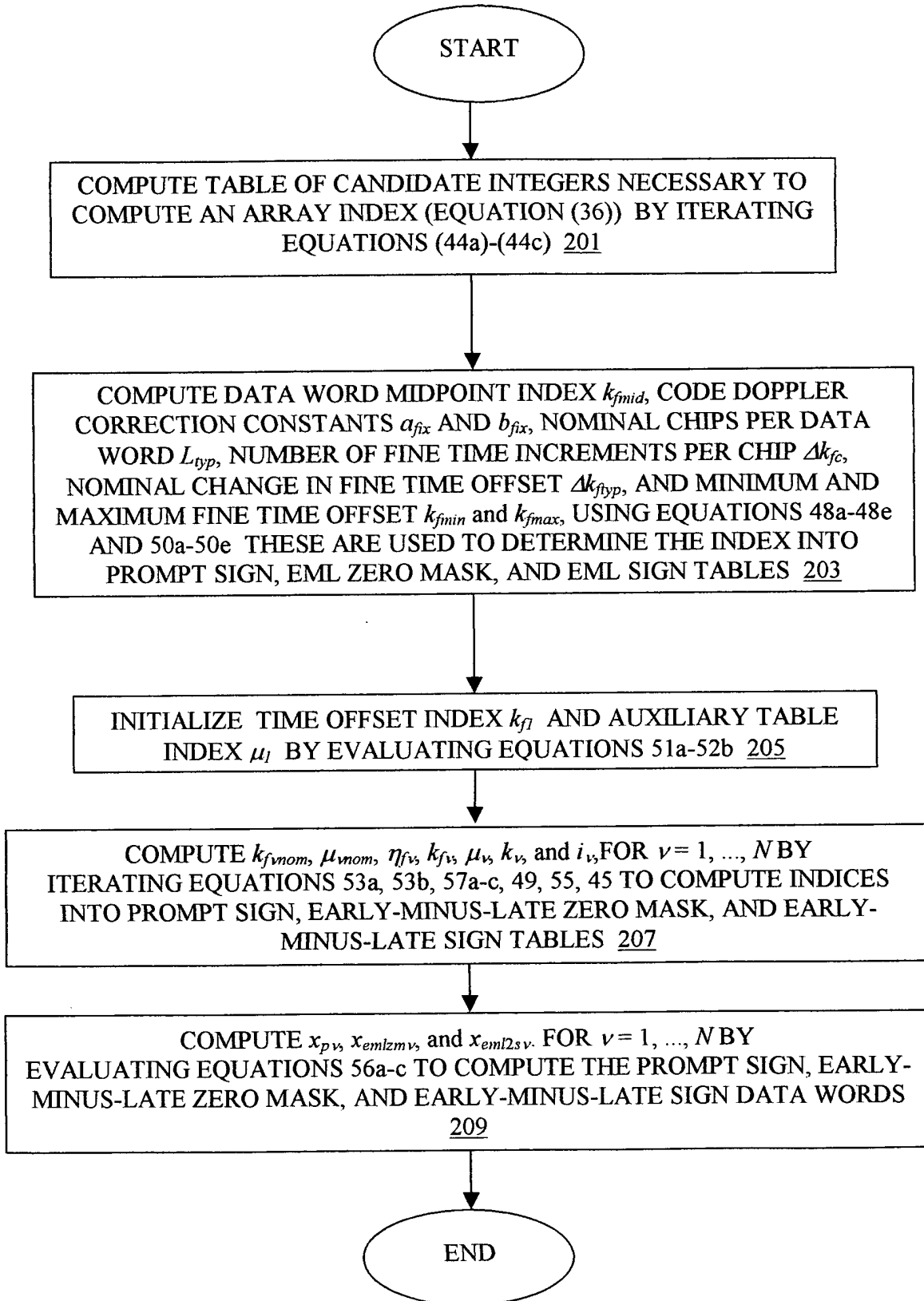


FIG. 7

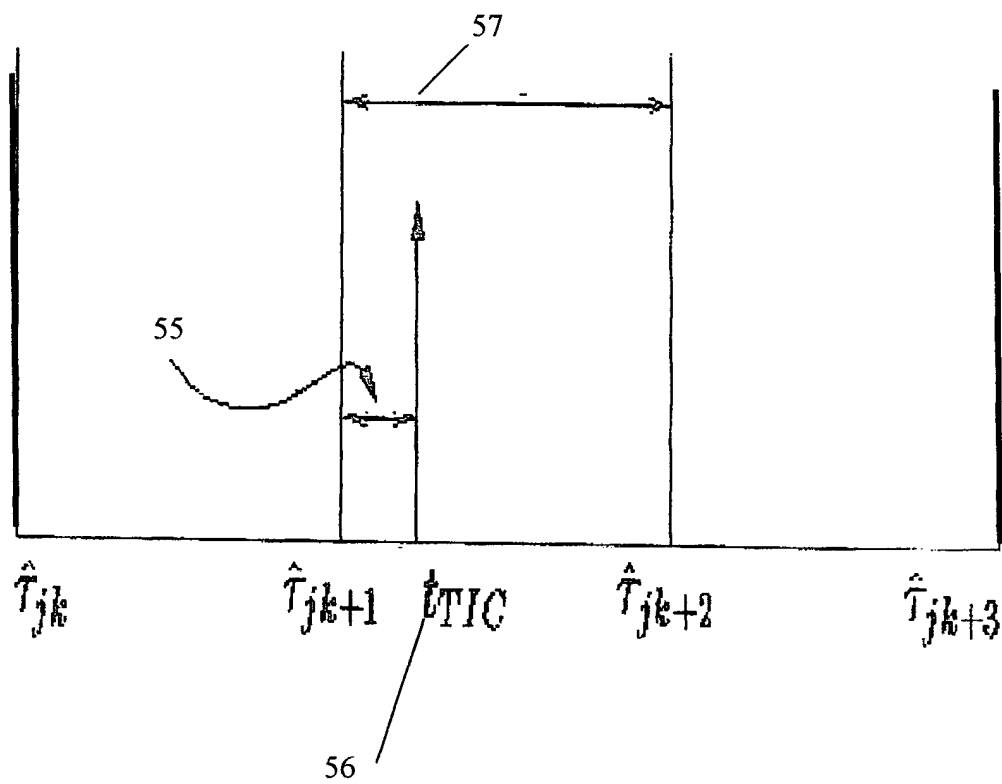


FIG. 8

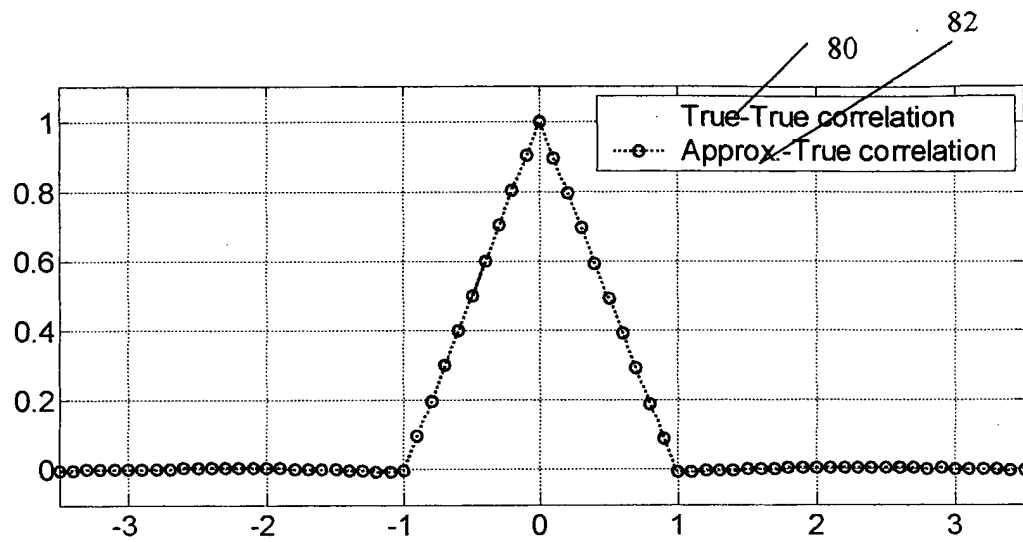


FIG. 9A

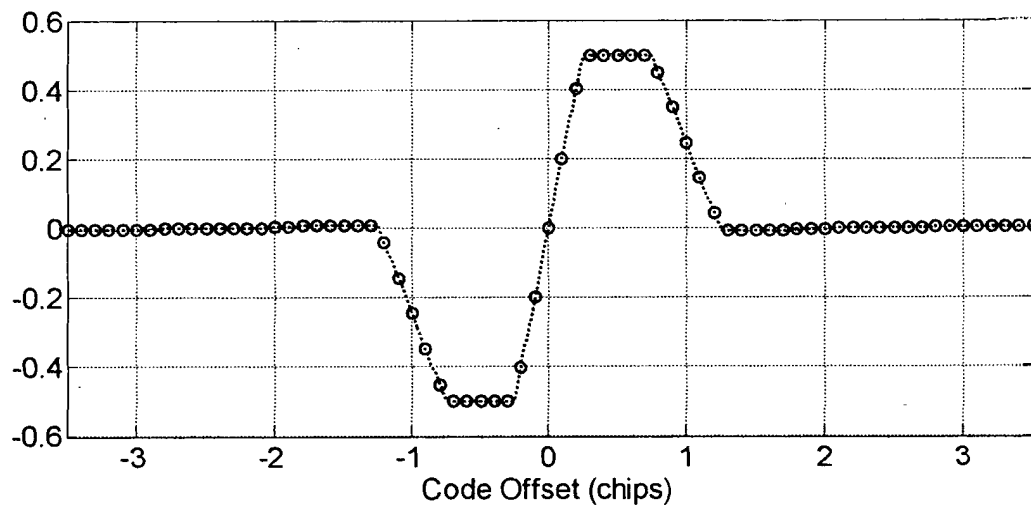


FIG. 9B